

## Step 13 – JDBC – the first steps

Time for something somewhat new. We will accomplish two things at the same time: see a situation where Abstraction is particularly useful, and learn a new skill: interacting with databases from a Java program.

The goals for this step:

- Provide database support for our projects
- Learn to connect to a database
- Learn to add objects created in a program to a database
- Learn to retrieve information from a database and convert it into usable Java objects.

### Task 1 – Database support

Expanding previous work. You will start from your own Shapes with MoveablePoints solution, or using the one in the exercises/ex13/shapes.

The task is to create a class that allows you to create new shapes and add them to a database. You should:

- Have a method that adds a shape to a database
- Have a method that retrieves a particular object from a database
- Have a method that returns all objects from a database

What other operations might you need?

### Task 2 – Database support

This task is based on your solution to the first large task (or you can use the version in ex13/books).

Instead of storing the books in a text file, offer the same functionality, but using databases instead.

### Task 2b – Expansion

Once you have the previous point running smoothly, it is time to increase complexity a bit. Instead of having the authors as Strings, create a class Author that represents that.

The class author should contain:

- Unique id, Name, surname, date of birth.
- Country of origin

Each book may have more than one author, and each author may have written more than one book.

What needs to change when you add/retrieve a book from the database, in order to ensure that the objects in question (e.g. Book) remain valid and the information described within remains consistent?